STATE OF CALIFORNIA
CONSUMER POWER AND CONSERVATION
FINANCING AUTHORITY

In the Matter of:	)	
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Establishment of Target Reserve Level for The California Power Authority Investment Plan	)	Rulemaking No. 2002-07-01
	)	July 24, 2002
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COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION ON THE SEPTEMBER 16, 2002 DRAFT DECISION REGARDING A TARGET RESERVE LEVEL

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COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION ON THE SEPTEMBER 16, 2002 DRAFT DECISION REGARDING A TARGET RESERVE LEVEL

The California Independent System Operator Corporation ("CA ISO") respectfully submits these comments on the September 16, 2002, Draft Decision regarding a Target Reserve Level ("Draft Decision") issued by the Consumer Power and Conservation Power Authority ("CPA"). The Draft Decision adopts a target reserve level for purposes of developing the CPA's annual Electric Resource Investment Plan in February 2003. The Draft Decision proposes a level of 22% based on installed capacity with an eye for both reliability and market stability. The Draft Decision further proposes that 25-50% of this reserve level come from demand response programs.

Generally, the CA ISO appreciates the CPA's efforts to address the establishment of a state target reserve level, and its commitment to coordinate with the other entities addressing related issues. As the CA ISO noted in its August 26th comments submitted in this matter ("CA ISO comments"), the CA ISO is charged with ensuring the efficient use and reliable operation of the transmission grid "consistent with the achievement of planning and operating reserve criteria no less stringent that those established by the

Western Systems Coordinating Council", now the WECC. Public Utilities Code § 345. Thus, the CA ISO considers that at a minimum, standards adopted by the various entities such as the CPA to achieve their respective longer-term resource adequacy responsibilities should ensure that the CA ISO, in concert with the Load Service Entities in California ("LSE") can meet the operating reserve requirements established by the WECC.

To ensure achievement of this goal, the CA ISO recommends that the CPA define its target reserve level based on either unforced capacity or at a minimum, net dependable capacity, rather than on installed capacity, for the reasons described below. Further, the CA ISO considers that, it will be necessary to periodically revise the target, and to evaluate progress towards achieving it, based on empirical data and updated forecasts. Moreover, the CA ISO is supportive of discounting for purposes of the target reserve level, generation that is not subject to long term contracts, since output from such generation may be exported and hence may not be available to meet California load.

In addition, the CA ISO strongly supports the goal of promoting aggressive use of demand response in achieving target reserve levels. However, the CA ISO suggests that it is important to accurately and clearly define the standards for accounting for and using demand response/load reduction programs in the achievement of target reserve levels.

Finally, the CA ISO welcomes the discussion in the Draft Decision regarding the need to clearly assign responsibilities related to the achievement of adequate target reserve levels. The CA ISO agrees wholeheartedly that responsibilities must be clearly and unambiguously defined. The CA ISO suggests moreover that additional considerations must be addressed in the assignment of responsibilities, including 1)

definition of the time frames associated with any responsibilities and the process to ensure that responsibilities are met; and 2) the financial and cost recovery impacts of these responsibilities including how these are affected by the ability of load to change its LSE.

These comments are discussed in further detail below.

The CA ISO offers one further introductory comment. The Draft Decision states categorically that "more reserves are needed under a market paradigm than under a cost of service paradigm. This is true." Draft Decision at 19. The CA ISO cautions that this finding is dependent on the structure of the market. A market structure in which load is not covered by forward contracts, demand is not price responsive, and inadequate market power mitigation mechanisms are in place is likely to require a higher level of planning reserves in order to facilitate competitive outcomes than a market structure with adequate forward contracting by load, significant price responsive demand, and comprehensive, regional and effective market power mitigation mechanisms in place. Thus, the market structure is an important factor in determining the appropriate level of reserves for purposes of ensuring competitive outcomes.

Further, as explained in the CA ISO comments, in the context of its Market Design 2002 initiative ("MD02"), the CA ISO proposed an Available Capacity ("ACAP") obligation which establishes a monthly reserve responsibility of 10-12% based on unforced capacity. (The Draft Decision, using general average factors, adjusts the unforced capacity measure to an installed capacity measure and indicates that a target reserve level of 22% of installed capacity is consistent with the reserve margin recommended by the CA ISO of between 10-12% of unforced capacity.) The ACAP

monthly obligation is designed to achieve compliance with daily WECC operating reserve requirements of 5% of control area load for hydro units and 7% of control area load for thermal units in the case of the CA ISO control area (the WECC operating reserve figure is adjusted by 3-5% to account for regulation requirements and load forecast error). The CA ISO's proposal is the subject of ongoing negotiations. Nonetheless, the CA ISO considers that the state target reserve level should, at a minimum, provide for meeting system reliability requirements. Thus, if the level of reserves required to ensure competitive outcomes becomes lower than the level of reserves required for system reliability, reserves should still be maintained at a level that provides for system reliability. Therefore, under no conditions should the reserve level based on unforced capacity be less than the 10-12% level required to maintain system reliability.

1) The CA ISO recommends that the target reserve level be defined based on unforced capacity or, at a minimum, net dependable capacity.

The Draft Decision provides for the adoption of a 22% target reserve level calculated based on installed capacity. As noted earlier, the Draft Decision reasons that this level is consistent with the reserve margin recommended by the CA ISO of between 10-12% of unforced capacity. The CA ISO appreciates the attempt in the Draft Decision to harmonize the CPA's target reserve level with the CA ISO's recommended reserve margin level. However, the CA ISO is concerned that adoption of a 22% target reserve level calculated based on installed capacity could result in an inadequate reserve level for the following reasons: 1) installed capacity is a very inexact measure for purposes of a target reserve level; 2) use of installed capacity may not provide for achievement of WECC operating reserve standards; and 3) basing the target reserve level on installed

capacity may create implementation problems with regard to contracts used to meet the target reserve levels.

The CA ISO strongly advises the CPA to adopt a target reserve level that uses unforced capacity, or at a minimum, net dependable capacity as the measure. The CA ISO is very concerned about use of installed capacity as the measure because it is a notoriously imprecise measure. Installed capacity is determined based on the nameplate capacity of generating units and is known to be significantly higher than the actual level at which different types of resources can operate consistently. The following are just a few factors that are ignored by installed capacity figures: most units cannot operate consistently at their nameplate capacity; thermal units have temperature related operating limitations; nuclear units have particular outage cycles for refueling and maintenance; hydro units are affected by seasonal precipitation patterns; wind units are affected by daily and seasonal variations in wind patterns; the operation of particular units will be affected by their particular vintage and general condition.

It is possible of course to apply a factor to a reserve margin level to reduce installed capacity by the average impact of the types of effects described above. However, such a factor does not reflect the particular mix of resources in question, their fuel type, age and condition or the other unique factors that will affect the output of different types of generating units at particular locations. In short, a target reserve level based on installed capacity is a very rough number that does little to account for the particular characteristics of the fleet of units in question or local conditions. Such a target level could significantly overstate (or understate) the level of resources actually available in California to meet demand. Moreover, by defining a target reserve level based on

installed capacity, the CPA could eliminate incentives to pursue in California resource options of the type most likely to assure output at the times when significant output is required.

As outlined in the CA ISO comments, net dependable capacity is based on historic output rather than nameplate capacity. By focusing on historic output, net dependable capacity figures internalize many of the items that can impact the actual output of a plant, including for example its fuel source, vintage, etc. Accordingly, a target reserve level based on net dependable capacity would be a far more precise and useful figure than one based on installed capacity.

The CA ISO recognizes that one difficulty with defining a target reserve level based on net dependable capacity is that for new units some estimate of likely output would have to be developed since historic output information does not exist. Nonetheless, it is possible to develop estimates for new units and on-going concerns can be reduced through updates to target reserve level determinations that review empirical evidence (a topic which will be discussed in further detail below). Moreover, the need to develop estimates for new units is still a minor concern compared with the problems that arise from use of installed capacity as the measure of target reserve levels.

As explained in the CA ISO comments, the CA ISO's proposed reserve level is based on unforced capacity, which adds to net dependable capacity levels an adjustment for forced outages. Using unforced capacity as the basis for defining a target reserve level, as opposed to net dependable capacity, provides for an even more refined target reserve level since more accurate adjustments can be made for forced outages that take into account the characteristics of the mix of resources available in California. The CA

ISO supports this further refinement. But at a minimum, to have a meaningful target reserve level that is properly reflective of the actual mix of resources and local conditions in California, it is important to define the target reserve level in terms of net dependable capacity.

In addition, use of installed capacity to define the target reserve level could result in a failure to meet WECC operating reserve requirements. As stated earlier, the CA ISO developed the ACAP proposed target reserve level of 10-12% based on unforced capacity with the purpose of ensuring that daily WECC operating reserve requirements can be met. However, a 22% reserve level based on installed capacity may or may not correspond to the 10-12% reserve level based on unforced capacity depending on a variety of factors including the resource mix, forced outage rates, availability of fuel supply, weather patterns, etc. Use of a planning reserve based on installed capacity rather than net dependable or unforced capacity is troublesome, because WECC planning and operating reserve criteria can only be met by capacity that is actually available. Thus, a planning target reserve level adopted by the CPA and others that is based on installed capacity may not assure that California control areas will be capable of meeting WECC operational requirements.

Finally, using installed capacity may create implementation problems in cases where LSEs contract for capacity resources to meet their target reserve level obligations. Installed capacity is not a product that is ordinarily contracted for, i.e. it is not a standard product. Instead, power contracts ordinarily relate to available or firm capacity, products more closely analogous to net dependable capacity or unforced capacity. Accordingly, if

installed capacity is used as the basis for a target reserve level it will be necessary to "translate" products ordinarily contracted for into a measure of installed capacity.

In sum, the CA ISO considers that it is important to define a statewide target reserve level based on either unforced capacity, or at a minimum, net dependable capacity. Use of installed capacity is too general, does not assure achievement of WECC operating reserve standards, and could reduce incentives to pursue resources that would in fact be available to meet California demand over the long term.

2) The CA ISO supports use of empirical evidence to update reserve levels and discounting of resources that have no commitment to sell to California.

The Draft Decision adopts a general target reserve level of 22% of installed capacity, but notes that each LSE and its regulatory body will set target reserve levels individually. The Draft Decision acknowledges the need to refine this target reserve level, taking into account a variety of factors but does not delineate the process for such refinement. The CA ISO agrees that further refinement will be necessary and suggests that a process will be required to undertake further on-going updates and refinements based on empirical evidence and changes in forecasted conditions.

The section above describes one salutary refinement that can be made up front, defining the target reserve level based on unforced capacity or net dependable capacity rather than installed capacity. In addition, it will be important to refine the target reserve level and assess progress towards meeting it, in a manner that tracks and incorporates empirical evidence and data, as well as evolving forecasted conditions. As described earlier, different levels of output can be expected from different resources, depending on their fuel type, individual characteristics and the local context. This level of expected output can change over time, as will the forecast of load. Accordingly, the CA ISO

considers that the target reserve level itself and progress achieving it should be reviewed periodically and assessed against empirical evidence and new forecasts. Moreover, the entity with the responsibility to ensure that there are sufficient reserves should be clearly identified, along with the process for reviewing and updating the target reserve level and the progress towards achieving it.

Further, the CA ISO supports the CPA's proposal to discount the contribution towards achievement of a statewide target reserve level from merchant generators that are not subject to a contract to deliver their power to California load. As documented in CA ISO Department of Market Analysis presentations to the CA ISO Governing Board (available at the CA ISO website at http://www.caiso.com/pubinfo/BOG/documents/other/index.html), even during peak load times in California, substantial power is exported to areas outside the state. For example, in July 2002, average hourly exports for the month were above 3000 MW and in August 2002, average hourly exports for the month were above 2500 MW. Market Analysis Report July- August 2002. Accordingly, relying on merchant generation that has no contractual requirement to deliver its output to California load for purposes of meeting a statewide target reserve level is unrealistic. Of course, it is also important to consider the level of imports that can be expected from neighboring areas. As described earlier, further refinement of these issues requires a review of empirical data.

In sum, going forward it will be necessary to refine and monitor any statewide target reserve level and progress towards achieving it. The target reserve level and progress towards achieving it will have to be monitored and adjusted based on empirical data and revised forecasts. Such data and forecasts should also be used to assess and

refine the appropriate weight to be given to internal merchant generation that is not subject to contract with California demand, as well as in refining how imports and exports should be considered. Pending such refinement, the CA ISO certainly agrees that the contribution to a target reserve level of merchant generation that is not subject to contracts with California load should be steeply discounted.

3) Accounting for demand response programs should be realistic.

The CA ISO strongly supports the goal of promoting aggressive use of demand response in achieving target reserve levels. As noted in the CA ISO comments, the CA ISO has attempted to facilitate the participation of load-based resources in its MD02. Nonetheless, the CA ISO is concerned that the target in the Draft Decision of securing 25 to 50% of required reserve levels from demand response could be difficult to achieve given the current level of technology to accomplish this goal. As the Draft Decision itself states these percentages would equate to 5-11% of peak load, a level of curtailable demand which could be very difficult to obtain and guarantee. Moreover, the CA ISO is concerned that demand response/load reduction programs must be properly designed to ensure they operate with a similar level of consistency and reliability as other system resources.

The Draft Decision does not provide the basis for the conclusion that 25-50% of a target reserve level could be met by demand-response, although it does acknowledge that this goal would require a concerted effort and participation of both targeted demand programs and appropriate price signals to customers. The CA ISO certainly agrees that a concerted effort will be required to meet the goal set forth in the Draft Decision. Moreover, it will be very important to ensure that demand-response that is counted

towards meeting the target reserve level is real, reliable and meets the requisite performance requirements consistent with other system resources.

While the CA ISO is very supportive of dramatically increasing the role of demand response in the electricity market, the CA ISO is also very concerned about an adequate availability of resources to meet demand. As control area operator, the CA ISO's particular considerations with regards to the use of demand response/load reduction to meet a target reserve level relate to the CA ISO's specific responsibility of ensuring that there are adequate operating reserves available at all times to meet WECC criteria.

Demand response/load reduction programs can play a role in this context in two distinct ways. First, such programs can help to reduce control area load, and hence the level of operating reserves required. With respect to this approach, it is important to accurately estimate the impact of demand response/load reduction programs, to avoid unexpectedly high load levels. Overly optimistic assumptions about the impact of load reduction programs could result in a less robust reserve level than is required to meet WECC standards.

Demand response/load reduction programs can also be used as a source of operating reserves. However, in this capacity, the demand response/load reduction programs must meet the minimum WECC technical requirements for operating reserves. Because of the need to meet these requirements, to date, the CA ISO has limited its Participating Load program to non-spinning and replacement reserve. The CA ISO's requirements for Participating Load are available on the CA ISO website at http://www.caiso.com/clientserv/load/

In summary, the CA ISO supports aggressive action to maximize the use of demand response in achieving a state target reserve level. Nonetheless, the CA ISO considers that the effect of demand response/load reduction programs must be carefully assessed and documented to ensure that the impacts are accurately accounted for in determining the appropriate target reserve level. Moreover, to the extent demand response/load reduction programs are used for purposes of meeting operating reserve requirements, the technical standards of WECC must be incorporated into program designs.

4) It is necessary to clearly assign responsibilities for target reserve levels, along with associated time frames, procedures, and cost-recovery mechanisms to ensure that responsibilities are being met.

The CA ISO welcomes the discussion in the Draft Decision regarding the need to clearly assign responsibilities related to the achievement of a state target reserve level. The CA ISO agrees with this point of view. Further, there must be clear timelines and procedures to ensure that all affected entities are in fact properly undertaking their respective responsibilities.

The Draft Decision contains no discussion of such timelines and procedures. It states only that as the grid operator responsible for achievement of operating reserve criteria, the CA ISO requires the information and tools to perform this function. As the CPA is aware, proposed CA ISO Tariff provisions relating to the achievement of operating reserve criteria and encouraging procurement of adequate resources in the forward market are currently the subject of an intensive stakeholder process. Nonetheless, the CA ISO considers that the mere provision of information to the CA ISO will be insufficient to ensure that all entities undertake their responsibilities related to the

achievement of a state target reserve level. Additional detail on the timelines and procedures to enforce responsibilities is required.

Moreover, along with the assignment of responsibilities to particular entities, it will be necessary to recognize and address how their responsibilities and the financial consequences of achieving a target reserve level are to be managed given uncertainty as to the status of their load. For example, if utilities are charged with procuring adequate target reserve levels for their customers in the mid to long term, it will be necessary to develop a responsible cost recovery regime associated with this responsibility and to address the treatment of departing load, including municipalization and self generation. Thus, to the extent the existing load of a utility can become load of another LSE such as a municipality (through municipalization or aggregation programs), or if direct access resumes, an energy service provider, it will be necessary to address how the responsibilities are transferred and the financial consequences addressed in a manner that is fair to all parties. The CA ISO is aware that the CPUC is grappling with these issues already in the context of the contracts entered into to date by the California Department of Water Resources. Nonetheless, in further clarifying and assigning responsibilities for the achievement over the long term of a state target reserve level, it will be necessary to address the departure of existing load, and the associated potential for stranded costs with the appropriate regulatory bodies.

In sum, to ensure that entities meet their respective responsibilities as to the achievement of a state target reserve level, it will not only be necessary to define the precise level and nature of the reserves to be obtained. In addition, it will be necessary to

establish time lines and procedures for monitoring and enforcing responsibilities and to address the departure of existing load and associated financial and cost recovery issues.

5) **Conclusion.**

The CA ISO respectfully submits these comments on the Draft Decision and looks forward to continuing to cooperate with the CPA regarding the definition of a state target reserve level.

Respectfully submitted this 11th of October, 2002 by:

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